

## APPENDIX

Inventor: Jeffrey D. Marsh

Title of Application: APPARATUS AND METHOD OF ON DEMAND PRINTING,  
BINDING, AND TRIMMING A PERFECT BOUND BOOK

### Visual Basic Control Code For Controller CONT 1 - AT6400 Controller

```
1 Public Sub Form_Load()
2     MessageWait = False
3     HaveBook = False
4     runcontinuous = False
5     textstr = ""
6     OffLineStr = "OFFLINE" & Chr(13) & Chr(10)
7     OnLineStr = "ONLINE" & Chr(13) & Chr(10)
8     inx = 0
9     SonicBound = 0
10    opencoms
11    cmdClrAll_Click
12    cmdStop.Visible = False
13    BindOnly = False
14    BBtoggle = True
15    msJobsPath = "c:\integrated\jobs"
16    ext = "PRM"
17    Winsock1.RemoteHost = "192.168.1.42"
18    Winsock1.RemotePort = 23 '80 'was 35
19    Winsock1.Connect
20    Winsock3.RemoteHost = "192.168.1.44"
21    Winsock3.RemotePort = 23 '80 'was 35
22    Winsock3.Connect
23 End Sub
24
25 Sub doit()
26     ' do we have to ??
27     Nextprm = 0
28     chars_sent = Form1SendCommand(Out10T)
29     chars_sent = Form1SendCommand(Out14T)
30     WriteStart ' tell the daemon to restart
31     chars_sent = Form1SendCommand(Out14F)
32     Text2.Text = Nextprm
33     Text2.Refresh
34     BindStep = -1
35     ShearStep = 0
36     BindTime = 0
37     ShearTime = 0
38     CoolTime = 0
39     NextNestMove = 0
40     TransPos = 0
41     NestPos = 0
```

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```
42     nestpos2 = 0
43     ShearPos = 0
44     ShearReady = True
45     shearloaded = False
46     ShearEmpty = False
47     OpenShear = False
48     BindTemp = False
49     ShearTemp = False
50     ShearTemp2 = False
51     ExitPushed = False
52     BB1Manual = False
53     BB2Manual = False
54     runcontinuous = False
55     Ts1 = 0
56     Ts2 = 0
57     Ts3 = 0
58     Ts4 = 0
59     Ts5 = 0
60     BinderReady = True
61     BinderLoaded = False
62     StopPushed = False
63     NewPrint = False
64     chars_sent = Form1SendCommand("COMEXC1")
65     Dim f1
66     Dim fso As New FileSystemObject, fldr As Folder
67     cmdGo.Visible = False
68     cmdExit.Visible = False
69     cmdStop.Visible = True
70     Set fs = CreateObject("Scripting.FileSystemObject")
71     Set Fileptr = fs.CreateTextFile("c:\makebook.log", True)
72     Fileptr.WriteLine ("Creating File")
73     Fileptr.Close
74     Text1.Text = ""
75     ' Form4.Poll60003 is I/O 3 BookBlock #1 Dropped
76     ' Form4.Poll60009 is I/O 8 BookBlock #2 Dropped
77     ' Form4.Poll60006 is I/O 7 CoverInPlace
78     ' Form4.Poll60008 is I/O 5 CoverInRail -> put Cover Printer Offline
79     booksource = 1
80     OnePrinting = False
81     OneReady = True
82     OneBBDone = False
83     OneBinding = False
84     TwoPrinting = False
85     TwoReady = True
```

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```
86     TwoBBDone = False
87     TwoBinding = False
88     CoverOnHold = False
89     Winsock1.SendData (Chr(13) & Chr(10))
90     Winsock1.GetData strData
91     Do While strData <> ""
92         Winsock1.GetData strData
93     Loop
94     Winsock3.SendData (Chr(13) & Chr(10))
95     Winsock3.GetData strData
96     Do While strData <> ""
97         Winsock3.GetData strData
98     Loop
99     Do
100         DoEvents
101         If StopPushed = True Then
102             chars_sent = Form1.SendCommand("COMEXC0")
103             chars_sent = Form1.SendCommand("D " + Str(TransStart) + ",0," + Str(NestZero) +
104             ",0")
105             chars_sent = Form1.SendCommand("GO 1101")
106             chars_sent = Form1.SendCommand("OUT 0000000000000000000000000000")
107             chuteup
108             If BindOnly Then
109                 NestPos = 0
110                 chars_sent = Form1.SendCommand("V ,20:D " + "," + Str(NestPos) + ",,")
111                 chars_sent = Form1.SendCommand("GO X1XX")
112                 pause (5)
113             End If
114             Exit Do
115         End If
116         Form1.Comm60001.UpdateFastStatus
117         AXIS1POS = Form1.Comm60001.GetFastStatusItem(AXIS1_MOTOR)
118         AXIS2POS = Form1.Comm60001.GetFastStatusItem(AXIS2_MOTOR)
119         AXIS3POS = Form1.Comm60001.GetFastStatusItem(AXIS3_MOTOR)
120         AXIS4POS = Form1.Comm60001.GetFastStatusItem(AXIS4_MOTOR)
121         Axis1Stat = Form1.Comm60001.GetFastStatusItem(AXIS1_STATUS)
122         Axis2Stat = Form1.Comm60001.GetFastStatusItem(AXIS2_STATUS)
123         Axis3Stat = Form1.Comm60001.GetFastStatusItem(AXIS3_STATUS)
124         axis4stat = Form1.Comm60001.GetFastStatusItem(AXIS4_STATUS)
125         Instat = Form1.Comm60001.GetFastStatusItem(INPUT_STATUS)
126         Form1.Poll60001.Update
127         ShearLimit = Val(Form1.Poll60001.value)
128         Form4.Poll60008.Update
129         CoverRailValue = Val(Form4.Poll60008.value)
```

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```
130     Form4.Poll60006.Update
131     CoverPlaceValue = Val(Form4.Poll60006.value)
132     Form4.Poll60005.Update
133     BB1DroppedValue = Val(Form4.Poll60005.value)
134     Form4.Poll60009.Update
135     BB2DroppedValue = Val(Form4.Poll60009.value)
136     Form1.Text8.Text = Str(BindStep)
137     Form1.Text8.Refresh
138     Form1.Text9.Text = Str(BindTime)
139     Form1.Text9.Refresh
140     Form1.Text10.Text = Str(ShearStep)
141     Form1.Text10.Refresh
142     Form1.Text11.Text = Str(ShearTime)
143     Form1.Text11.Refresh
144     Form1.Text12.Text = Str(Axis1Stat)
145     Form1.Text12.Refresh
146     Form1.Text13.Text = Str(Instat)
147     Form1.Text13.Refresh
148     Form1.Text15.Text = Str(Axis2Stat)
149     Form1.Text15.Refresh
150     Form1.Text16.Text = Str(Axis3Stat)
151     Form1.Text16.Refresh
152     Form1.Text17.Text = Str(axis4stat)
153     Form1.Text17.Refresh
154     Form1.Text18.Text = Str(AXIS1POS)
155     Form1.Text18.Refresh
156     Form1.Text19.Text = Str(AXIS2POS)
157     Form1.Text19.Refresh
158     Form1.Text20.Text = Str(AXIS3POS)
159     Form1.Text20.Refresh
160     Form1.Text21.Text = Str(AXIS4POS)
161     Form1.Text21.Refresh
162     Form1.Text22.Text = Str(TransPos)
163     Form1.Text22.Refresh
164     Form1.Text23.Text = Str(NestPos)
165     Form1.Text23.Refresh
166     Form1.Text24.Text = Str(NestRotPos)
167     Form1.Text24.Refresh
168     Form1.Text25.Text = Str(ShearPos)
169     Form1.Text25.Refresh
170
171     If BindOnly = True Then
172         Bindloop
173         chars_sent = Form1SendCommand("COMEXC0")
```

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```
174     chars_sent = Form1SendCommand("D " + Str(TransStart) + ",0," + Str(NestZero) +
175     ",0")
176     chars_sent = Form1SendCommand("GO 1101")
177     chars_sent = Form1SendCommand("OUT 000000000000000000000000")
178     cmdStop_Click
179     Exit Do
180 End If
181     If OneReady = True Then ' And CoverOnHold = False Then
182         WriteReadyOne
183         OneReady = False
184     End If
185
186     If TwoReady = True Then 'And CoverOnHold = False Then
187         WriteReadyTwo
188         TwoReady = False
189     End If
190
191     If OneReady = False And OneBBDone = False Then
192         Winsock1.GetData strData
193         If InStr(strData, "Printing") > 0 Then
194             OnePrinting = True
195             Text1.Text = strData
196             strData = ""
197             Text1.Text = "One Printing" + Chr(13) + Chr(10) + Text1.Text
198             Text1.Refresh
199         End If
200         If InStr(Left(strData, 5), "Idle") > 0 And OnePrinting = True Then
201             OneBBDone = True
202             OnePrinting = False
203             strData = ""
204             Text1.Text = "One Done" + Chr(13) + Chr(10) + Text1.Text
205             Text1.Refresh
206         End If
207         Winsock1.GetData strData
208         Do While strData <> ""
209             Winsock1.GetData strData
210         Loop
211     End If ' to OneReady TCP/IP Read
212
213     If TwoReady = False And TwoBBDone = False Then
214         Winsock3.GetData strData
215         If InStr(strData, "Printing") > 0 Then
216             TwoPrinting = True
217             Text1.Text = strData
```

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```
218      strData = ""
219      Text1.Text = "Two Printing" + Chr(13) + Chr(10) + Text1.Text
220      Text1.Refresh
221  End If
222  If InStr(Left(strData, 5), "Idle") > 0 And TwoPrinting = True Then
223      TwoBBDone = True
224      TwoPrinting = False
225      strData = ""
226      Text1.Text = "Two Done" + Chr(13) + Chr(10) + Text1.Text
227      Text1.Refresh
228  End If
229  Winsock3.GetData strData
230  Do While strData <> ""
231      Winsock3.GetData strData
232  Loop
233  End If ' to TwoReady TCP/IP Read
234
235  If CoverOnHold = False And CoverRailValue = 1 Then
236      CoverOnHold = True
237  End If
238
239  If CoverOnHold = True And CoverRailValue = 0 Then
240      CoverOnHold = False
241  End If
242
243  If OpenShear = True And Val(Timer()) > ShearTime + 6 Then 'Global if to stop
244  shear open
245      chars_sent = Form1SendCommand(Out11F) 'Stop Shear Open
246      chars_sent = Form1SendCommand(Out12F)
247      chars_sent = Form1SendCommand(Out20F)
248      chars_sent = Form1SendCommand(Out21F)
249      OpenShear = False
250  End If
251  ***** Put goto 1 & 2 Routines, Clamp and goto start routines here
252
253  If BindStep = -1 And booksource = 1 And ((OneBBDone = True And
254  CoverPlaceValue = 1) Or BB1Manual = True) Then
255      BindStep = 0
256      chars_sent = Form1SendCommand(Out2T) ' Open
257      TransPos = Book1Start
258      sendstr = "A 10:V 5:D " + Str(TransPos) + ":GO 1XXX"
259      chars_sent = Form1SendCommand(sendstr)
260      WriteStatus ("BindStep = -1 OneBBDone")
261  End If ' This starts the BB Controller to Release the Book
```

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```
262
263     If BindStep = -1 And booksource = 2 And ((TwoBBDone = True And
264 CoverPlaceValue = 1) Or BB2Manual = True) Then
265         BindStep = 0
266         chars_sent = Form1SendCommand(Out2T) ' Open
267         TransPos = Book2Start
268         sendstr = "A 10:V 5:D " + Str(TransPos) + ":GO 1XXX"
269         chars_sent = Form1SendCommand(sendstr)
270         WriteStatus ("BindStep = -1 TwoBBDone")
271     End If ' This starts the BB Controller to Release the Book
272
273     If BindStep = 0 And BB1DroppedValue = 1 And booksource = 1 Then
274         BindStep = 1#
275         chars_sent = Form1SendCommand(Out5T) 'Glue pot motor ON
276         chars_sent = Form1SendCommand(Out2F) 'Stop open
277         pause (0.2)
278         chars_sent = Form1SendCommand(Out1T) ' Grab The BB
279         BindTime = Val(Timer())
280         WriteStatus ("BindStep = 1 BookSource=1")
281     End If
282
283     If BindStep = 0 And BB2DroppedValue = 1 And booksource = 2 Then
284         BindStep = 1#
285         chars_sent = Form1SendCommand(Out5T) 'Glue pot motor ON
286         chars_sent = Form1SendCommand(Out2F) 'Stop open
287         pause (0.2)
288         chars_sent = Form1SendCommand(Out1T) ' Grab The BB
289         BindTime = Val(Timer())
290         WriteStatus ("BindStep = 1 BookSource=2")
291     End If
292
293     If BindStep = 1# And Val(Timer()) > BindTime + 4 Then
294         BindStep = 1.2
295         chars_sent = Form1SendCommand(Out1F)
296         TransPos = TransStart
297         sendstr = "A 8:V 15:D " + Str(TransPos) + ":GO 1XXX"
298         chars_sent = Form1SendCommand(sendstr)
299         WriteStatus ("BindStep = 1.2 Start Move")
300     End If
301
302     If BindStep = 1.2 And AXIS1POS = TransPos Then 'Universal Jog
303         BindStep = 1.3
304         chars_sent = Form1SendCommand(Out1F) 'Stop Clamp
305         pause (0.2)
```

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```
306     chars_sent = Form1SendCommand(Out2T) 'Clamp Out
307     BindTime = Val(Timer())
308 End If
309
310 If BindStep = 1.3 And Val(Timer()) > BindTime + 1.4 Then 'was 2 seconds
311     BindStep = 1.4
312     chars_sent = Form1SendCommand(Out2F) 'Clamp Stop
313     chars_sent = Form1SendCommand(Out0T)
314     TransPos = TransStart + 37000
315     sendstr = "A 1:V 1:D " + Str(TransPos) + ":GO 1XXX"
316     chars_sent = Form1SendCommand(sendstr)
317     BindTime = Val(Timer())
318     WriteStatus ("BindStep = 1.4 BookSource=" + Str(booksource))
319 End If
320
321 If BindStep = 1.4 And Val(Timer()) > BindTime + 5 Then
322     BindStep = 1.5
323     chars_sent = Form1SendCommand(Out1T)
324     chars_sent = Form1SendCommand(Out0F)
325     BindTime = Val(Timer())
326     WriteStatus ("BindStep = 1.5 BookSource=" + Str(booksource))
327 End If
328
329 If BindStep = 1.5 And Val(Timer()) > BindTime + 4 Then
330     BindStep = 2#
331     chars_sent = Form1SendCommand(Out1F)
332     WriteStatus ("BindStep = 2 BookSource=" + Str(booksource))
333 End If
334
335 If BindStep = 2# And (CoverPlaceValue = 1 Or BB1Manual = True Or BB2Manual =
336 True) Then ' Ready to go!
337     BindStep = 2.1
338     If booksource = 1 And runcontinuous = False Then BB1Manual = False
339     If booksource = 2 And runcontinuous = False Then BB2Manual = False
340     If BindOnly <> True Then
341         nextfile = "C:\integrated\jobs\" + Trim(Str(Nextprm)) + "C.PRM"
342         Set fso = CreateObject("Scripting.FileSystemObject")
343         If fso.FileExists(nextfile) = True Then
344             Set ts = fso.OpenTextFile(nextfile, ForReading)
345             Do While Not (ts.AtEndOfStream)
346                 s = ts.ReadLine
347                 start = InStr(s, "=")
348                 If start < 1 Then Exit Do
349                 arg = Left(s, start - 1)
```



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```
350         value = Right(s, Len(s) - start)
351         If (arg = "TITLE") Then
352             Form1.Text14.Text = value + " " + nextfile
353             Form1.Caption = "Perfect Finish - " & value
354         End If
355         If (arg = "A") Then
356             Form1.txtPrm(0) = value
357         End If
358         If (arg = "B") Then
359             Form1.txtPrm(1) = value
360         End If
361         If (arg = "C") Then
362             Form1.txtPrm(2) = value
363         End If
364         If (arg = "D") Then
365             Form1.txtPrm(3) = value
366         End If
367         If (arg = "E") Then
368             Form1.txtPrm(4) = value
369         End If
370         If (arg = "F") Then
371             Form1.txtPrm(5) = value
372         End If
373         If (arg = "S") Then
374             Form4.Text5 = value
375             Form4.Text6 = value
376             Form4.Refresh
377         End If
378     Loop
379     Form1.Refresh
380     ts.Close
381     fso.DeleteFile nextfile
382     Nextprm = Nextprm + 1
383 End If ' to fileexists
384 End If ' to bindonly check
385 T1 = Val(Form1.txtPrm(0))
386 T2 = Val(Form1.txtPrm(1))
387 T3 = Val(Form1.txtPrm(2))
388 T4 = Val(Form1.txtPrm(3))
389 T5 = Val(Form1.txtPrm(4))
390 T6 = Val(Form1.txtPrm(5))
391 sendstr = Out3T
392 chars_sent = Form1SendCommand(sendstr)
393 WriteStatus ("BindStep = 2.1 Jogger Off, Mill On")
```

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```
394     TransPos = BINDZERO + Int(T2 * TransMult)
395     sendstr = "A 10:V 5:D " + Str(TransPos) + ":GO 1XXX"
396     chars_sent = Form1SendCommand(sendstr)
397     chars_sent = Form1SendCommand(Out1T)
398     WriteStatus ("BindStep = 2 Move Transport, Move Cover")
399 End If
400
401 If AXIS1POS > CutterStart And BindStep = 2.1 Then
402     BindStep = 2.2
403     sendstr = "V " + Form4.Text5 + ":GO 1XXXX"
404     chars_sent = Form1SendCommand(sendstr)
405     WriteStatus ("BindStep = 2.1 Set Mill Transport Speed")
406 End If
407
408 If AXIS1POS > (WaveStart - Int(TransMult * T1)) And BindStep = 2.2 Then
409     BindStep = 2.3
410     sendstr = "V " + Form4.Text6 + ":GO 1XXXX"
411     CoolTime = (5 - Val(Form4.Text6)) * 5
412     If CoolTime < 0 Then CoolTime = 0
413     chars_sent = Form1SendCommand(sendstr)
414     WriteStatus ("BindStep = 2.2 Set Gluepot Transport Speed")
415 End If
416
417 If AXIS1POS > ThruWipe And BindStep = 2.3 Then
418     BindStep = 3
419     sendstr = "V 12 : GO 1XXXX"
420     chars_sent = Form1SendCommand(sendstr)
421     chars_sent = Form1SendCommand(Out1F)
422 End If
423
424 If AXIS1POS = TransPos And BindStep = 3 Then
425     BindTime = Val(Timer())
426     BindStep = 4
427     chars_sent = Form1SendCommand(Out3F + ":" + Out5F + ":" + Out6T) 'Mill off
428     WriteStatus ("BindStep = 3 Mill Off, Glue Pot Off, Table Up")
429 End If
430
431 If BindStep = 4 And Val(Timer()) > (BindTime + 1.9) Then
432     BindTime = Val(Timer())
433     BindStep = 5
434     chars_sent = Form1SendCommand(Out8T) 'Nippers In
435     WriteStatus ("BindStep = 4 Table Pump Off Nippers In")
436 End If
437
```

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```
438     If BindStep = 5 And Val(Timer()) > (BindTime + 7.9 + CoolTime) Then
439         BindTime = Val(Timer())
440         BindStep = 6
441         BindTemp = False
442         chars_sent = Form1SendCommand(Out8F) 'Jaws OUT (turn motor off)
443         WriteStatus ("BindStep = 5  Jaws Out")
444     End If
445
446     If BindStep = 6 And Val(Timer()) > (BindTime + 0.2) And ShearReady Then
447         BindTemp = True
448         If booksource = 1 Then
449             OneReady = True
450             OneBBDone = False
451             Text1.Text = "#1 Through Bind"
452             Text1.Refresh
453         Else
454             TwoReady = True
455             TwoBBDone = False
456             Text1.Text = "#2 Through Bind"
457             Text1.Refresh
458         End If
459
460         BindStep = 9
461         Form1SendCommand (Out9F) 'Nest Clamp
462         Form1SendCommand (Out15T) 'Solenoid
463         Form1SendCommand (Out17T) 'Rot Rev
464         Form1SendCommand (Out16T) 'Rotate
465         ShearTime = Val(Timer())
466         DoOpenShear
467         BindTime = Val(Timer())
468         TransPos = NestCLH - Int((T1 / 2 - T2) * TransMult) - 37000
469         chars_sent = Form1SendCommand("V 10" + "." + "D " + Str(TransPos) +
470         ",0,0,150000:" + "GO 11XX")
471         chars_sent = Form1SendCommand(Out6F) ' Table DOWN
472         Form1SendCommand (Out15F)
473         WriteStatus ("BindStep = 7  Rotate Nest, Move To Drop")
474     End If
475
476     If BindStep > 8 And Val(Timer()) > (BindTime + 1.9) And BindTemp = True Then
477         BindTemp = False
478     End If
479
480     If BindStep = 9 And TransPos = AXIS1POS Then
481         chuteup
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```
482      BindStep = 10
483      NestPos = NestUp
484      NestRotPos = NestZero
485      chars_sent = Form1SendCommand("A,,,10:V,,,15")
486      ShearMove = ShearToNestCL + Int((0.5 * T1 + 1.75) * ShearMult)
487      ShearPos = ShearMove
488      chars_sent = Form1SendCommand("D " + "," + Str(NestPos) + ",," +
489 Str(ShearPos) + ":" + "GO X1X1")
490      WriteStatus ("BindStep = 9 Nest Up, Move Shear In To Guide Paper")
491      End If
492
493      'bindonly step 10
494      If BindStep = 10 And NestPos = AXIS2POS And ShearPos = AXIS4POS And
495 BindOnly = True Then
496      BindStep = 11
497      chars_sent = Form1SendCommand(Out2T)
498      pause (2)
499      chars_sent = Form1SendCommand(Out2F)
500      chars_sent = Form1SendCommand(Out9T) 'Nest Clamp IN
501      ShearPos = 100000
502      NestPos = 400000
503      chars_sent = Form1SendCommand("V,15 : D ," + Str(NestPos) + ",," +
504 Str(ShearPos) + ": GO X1X1")
505      WriteStatus ("BindStep = 10 Nudge, Clamp Book, Move Down")
506      If booksource = 1 Then
507          booksource = 2
508      Else
509          booksource = 1
510      End If
511      End If
512
513
514      If BindStep = 10 And NestPos = AXIS2POS And ShearPos = AXIS4POS Then
515      BindStep = 11
516      'The Nudge
517      chars_sent = Form1SendCommand(Out2T)
518      pause (2)
519      chars_sent = Form1SendCommand(Out2F)
520      TransPos = NestCLH - Int((T1 / 2 - T2) * TransMult) '- 15000
521      chars_sent = Form1SendCommand(Out2F + ":" + "A 1: V 2: D " + Str(TransPos) +
522 ":" + "Go 1") '03/03/00
523      For i = 1 To 5000
524          Form1.Comm60001.UpdateFastStatus
525          xpos = Form1.Comm60001.GetFastStatusItem(AXIS1_MOTOR)
```

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```
526         If xpos = TransPos Then i = 11000
527         Call Timer1_Timer
528     Next i
529     If i < 10000 Then
530         MsgBox "Failed move!"
531         DoAReset
532     End
533 End If
534 NestPos = NestUp - 20000
535 TransPos = TransPos - 5000
536 chars_sent = Form1SendCommand("D " + Str(TransPos) + "," + Str(NestPos) + "
537 : GO 11XX")
538     pause (1)
539     chars_sent = Form1SendCommand(Out9T) 'Nest Clamp IN
540     pause (2)
541     BindTime = Val(Timer())
542     NestPos = NestDN
543     chars_sent = Form1SendCommand("V ,15:D " + "," + Str(NestPos) + ",,")
544     chars_sent = Form1SendCommand("GO X1XX")
545     ChuteValue = Val(Form4.Poll60002.value)
546     If ChuteValue <> 1 Then
547         MsgBox "delivery chute failed to return!"
548         DoAReset
549     End
550 End If
551 WriteStatus ("BindStep = 10  Nudge, Clamp Book, Move Down")
552 If booksource = 1 Then
553     booksource = 2
554 Else
555     booksource = 1
556 End If
557 End If
558
559
560
561 If BindStep = 11 And (AXIS2POS > 800000 Or (AXIS2POS > 300000 And BindOnly
562 = True)) Then
563     BindStep = 12
564     *****Where to go
565     If booksource = 2 Then
566         TransPos = Book2Start - 37000
567     Else
568         TransPos = TransStart
569     End If
```

## APPENDIX

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Title of Application: APPARATUS AND METHOD OF ON DEMAND PRINTING,  
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```
570     chars_sent = Form1SendCommand("A 15")
571     chars_sent = Form1SendCommand("V 15")
572     chars_sent = Form1SendCommand("D " + Str(TransPos))
573     chars_sent = Form1SendCommand("GO 1XXX")
574     chars_sent = Form1SendCommand(Out1T)
575     shearloaded = True
576     ShearEmpty = False
577     'ShearStep = 0 removed 04/27 for dual printer
578     ShearReady = False
579     Ts1 = T1
580     Ts2 = T2
581     Ts3 = T3
582     Ts4 = T4
583     Ts5 = T5
584     WriteStatus ("BindStep = 11 not BindOnly Move Transport to:" & Str(TransPos))
585 End If
586
587 If BindStep = 12 Then
588     BindStep = 13
589 End If
590
591 If BindStep = 13 And TransPos = AXIS1POS Then
592     BindTime = Val(Timer())
593     BindStep = 14
594     chars_sent = Form1SendCommand(Out1F)
595     pause (0.2)
596     chars_sent = Form1SendCommand(Out2T)
597     WriteStatus ("BindStep = 13 Open Jaws")
598 End If
599
600 If BindStep = 14 And Val(Timer()) > (BindTime + 3) Then
601     BindStep = -1
602     chars_sent = Form1SendCommand(Out2F)
603     BinderReady = True
604     WriteStatus ("BindStep = 14 Transport ready at: " & Str(TransPos))
605 End If
606
607 If BindOnly And ShearStep = 0 And shearloaded = True Then
608     NextNestMove = Val(Timer())
609     shearloaded = False
610     ShearStep = 18
611 End If
612
```

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Title of Application: APPARATUS AND METHOD OF ON DEMAND PRINTING,  
BINDING, AND TRIMMING A PERFECT BOUND BOOK

```
613     If shearloaded = True And ShearStep = 0 And AXIS2POS = NestPos And
614 Val(Timer()) > (ShearTime + 4) Then '03/03/00
615         S1 = Ts1
616         S2 = Ts2
617         S3 = Ts3
618         S4 = Ts4
619         S5 = Ts5
620         chars_sent = Form1SendCommand(Out11F)
621         chuteup
622         ShearStep = 1
623         ShearPos = ShearToNestCL + Int((S3 - S1 / 2) * ShearMult)
624         chars_sent = Form1SendCommand("A ,10,,20" + ":" + "V ,,,20" + ":" + "D " + ",,"
625 + Str(ShearPos) + ":" + "GO XXX1")
626         WriteStatus ("ShearLoaded and ShearStep=1 S3=" + Str(S3) + " S1=" + Str(S1))
627     End If
628
629
630
631     If ShearStep = 1 And AXIS2POS = NestPos And AXIS4POS = ShearPos Then
632 'START CUT ONE
633         ShearStep = 2
634         shearloaded = False
635         chars_sent = Form1SendCommand(Out20T) 'Start the Clamp Down
636         chars_sent = Form1SendCommand(Out12F)
637         chars_sent = Form1SendCommand(Out11T)
638         ShearTime = Val(Timer())
639         Form1.Poll60001.Update
640         Shearvalue = Val(Form1.Poll60001.value)
641         Do While Shearvalue < 1 And Val(Timer()) < ShearTime + 4 'Wait for Clamp
642 Pressure
643             Form1.Poll60001.Update
644             Shearvalue = Val(Form1.Poll60001.value)
645         Loop
646         chars_sent = Form1SendCommand(Out20F)
647         chars_sent = Form1SendCommand(Out21T) 'Start the Blade Down
648         ShearTime = Val(Timer())
649         WriteStatus ("ShearStep = 1 Clamp Down Cut One")
650     End If
651
652     If ShearStep = 2 And Val(Timer()) > ShearTime + 3 Then
653         ShearTime = Val(Timer())
654         Form1.Poll60001.Update
655         Shearvalue = Val(Form1.Poll60001.value)
656         Do While Shearvalue < 1 And Val(Timer()) < ShearTime + 4
```

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BINDING, AND TRIMMING A PERFECT BOUND BOOK

```
657         Form1.Poll60001.Update
658         Shearvalue = Val(Form1.Poll60001.value)
659     Loop
660     pause (1)
661     chars_sent = Form1SendCommand(Out11F)
662     chars_sent = Form1SendCommand(Out12F)
663     pause (0.5)
664     chars_sent = Form1SendCommand(Out20F)
665     chars_sent = Form1SendCommand(Out21F)
666     ShearStep = 3
667     WriteStatus ("ShearStep = 2 End Cut One")
668 End If
669
670 If ShearStep = 3 Then
671     ShearStep = 4
672     ShearTime = Val(Timer())
673     DoOpenShear
674     WriteStatus ("ShearStep = 3 Open Shear Started after CUT ONE")
675 End If
676
677 If ShearStep = 4 And Val(Timer()) > (ShearTime + 2) Then
678     ShearStep = 5
679     ShearPos = ShearPos + Int((0.75 * ShearMult)) 'Changed from 1.25 to .75
680 02/02/00
681     chars_sent = Form1SendCommand("D ,," + Str(ShearPos) + ":" + "GO XXX1")
682     WriteStatus ("ShearStep = 4 Move Shear Back")
683 End If
684
685 If ShearStep = 5 And AXIS4POS = ShearPos And Val(Timer()) > (ShearTime + 4.5)
686 Then
687     ShearStep = 5.5
688     NestMoveUp = Int((S1 / 2 - (S1 - S3) - 1.5) * ElevMult) '1 gives 1/2" clear
689     NestPos = NestDN - NestMoveUp
690     chars_sent = Form1SendCommand("D ," + Str(NestPos) + ":" + "GO X1XX")
691     ShearTemp = True
692     pause (0.2)
693     chars_sent = Form1SendCommand(Out15F) 'Solenoid Off
694     chars_sent = Form1SendCommand(Out16F) 'Rot Off
695     chars_sent = Form1SendCommand(Out17F) 'Rot Rev
696     chars_sent = Form1SendCommand(Out16T) 'Rot
697     pause (0.5)
698     WriteStatus ("ShearStep = 5 Shut Shear Off, Move Nest, Wait, Rotate Nest")
699 End If
700
```



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Title of Application: APPARATUS AND METHOD OF ON DEMAND PRINTING,  
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```
701      If ShearStep = 5.5 And AXIS2POS = NestPos Then
702          ShearStep = 6
703          NestMoveUp = Int((S1 / 2 - (S1 - S3) - 1) * ElevMult) '1 gives 1/2" clear
704          NestPos = NestDN - NestMoveUp
705          chars_sent = Form1SendCommand("D ," + Str(NestPos) + ":" + "GO X1XX")
706          ShearTemp = True
707          WriteStatus ("ShearStep = 5.5 Complete Nest Move")
708      End If
709      If ShearStep = 6 And AXIS2POS = NestPos And OpenShear = False Then
710          ShearStep = 7
711          ShearTemp = False
712          ShearPos = ShearToNestBot + Int(S4 * ShearMult)
713          chars_sent = Form1SendCommand("V,,,15:D ,,, " + Str(ShearPos) + ":" + "GO
714 XXX1")
715          WriteStatus ("ShearStep = 6 Move Shear In")
716      End If
717
718      If ShearStep = 7 And AXIS4POS = ShearPos Then
719          ShearStep = 8
720          chars_sent = Form1SendCommand(Out20T) 'Start the Clamp Down
721          chars_sent = Form1SendCommand(Out12F)
722          chars_sent = Form1SendCommand(Out11T)
723          ShearTime = Val(Timer())
724          Form1.Poll60001.Update
725          Shearvalue = Val(Form1.Poll60001.value)
726          Do While Shearvalue < 1 And Val(Timer()) < ShearTime + 4 'Wait for Clamp
727 Pressure
728          Form1.Poll60001.Update
729          Shearvalue = Val(Form1.Poll60001.value)
730      Loop
731          chars_sent = Form1SendCommand(Out20F)
732          chars_sent = Form1SendCommand(Out21T) 'Start the Blade Down
733          ShearTime = Val(Timer())
734          WriteStatus ("ShearStep = 7 Clamp Down Cut TWO")
735      End If
736
737      If ShearStep = 8 And Val(Timer()) > ShearTime + 3 Then 'Reduced Shear Time 2
738 02/02/00
739          ShearStep = 9
740          ShearTime = Val(Timer())
741          Form1.Poll60001.Update
742          Shearvalue = Val(Form1.Poll60001.value)
743          Do While Shearvalue < 1
744          Form1.Poll60001.Update
```

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Title of Application: APPARATUS AND METHOD OF ON DEMAND PRINTING,  
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```
745      Shearvalue = Val(Form1.Poll60001.value)
746      Loop
747      pause (1)
748      chars_sent = Form1SendCommand(Out11F)
749      chars_sent = Form1SendCommand(Out12F)
750      pause (0.5)
751      chars_sent = Form1SendCommand(Out20F)
752      chars_sent = Form1SendCommand(Out21F)
753      WriteStatus ("ShearStep = 8 End Cut TWO")
754      End If
755
756      If ShearStep = 9 Then
757          ShearStep = 10
758          ShearTime = Val(Timer())
759          DoOpenShear
760          WriteStatus ("ShearStep = 9 Open Shear Started after CUT TWO")
761      End If
762
763      If ShearStep = 10 And Val(Timer()) > (ShearTime + 1) Then
764          ShearStep = 11
765          ShearPos = ShearPos + Int(0.75 * ShearMult) ' Changed from 1.25 to .75
766      02/02/00
767          chars_sent = Form1SendCommand("D ,," + Str(ShearPos) + ":" + "GO XXX1")
768          WriteStatus ("ShearStep = 10 Move Shear Out")
769      End If
770
771      If ShearStep = 11 And AXIS4POS = ShearPos And Val(Timer()) > (ShearTime +
772      3.5) Then
773          ShearStep = 12
774          chars_sent = Form1SendCommand(Out17F) 'Rot Rev
775          chars_sent = Form1SendCommand(Out16F) 'Rot Off
776          pause (1)
777          chars_sent = Form1SendCommand(Out15T) 'Solenoid Off
778          chars_sent = Form1SendCommand(Out16T) 'Rot
779          WriteStatus ("ShearStep = 11 Rotate Nest")
780      End If
781
782      If ShearStep = 12 And Val(Timer()) > (ShearTime + 3) Then
783          ShearStep = 13
784          NestPos = Nest180Up + Int(2 * ElevMult)
785          chars_sent = Form1SendCommand("D ," + Str(NestPos) + ":" + "GO X1XX")
786          WriteStatus ("ShearStep = 12 Move Nest")
787      End If
788
```

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Title of Application: APPARATUS AND METHOD OF ON DEMAND PRINTING,  
BINDING, AND TRIMMING A PERFECT BOUND BOOK

```
789     If ShearStep = 13 And OpenShear = False Then
790         ShearStep = 14
791         FinalNestPos = Nest180Up
792         ShearPos = ShearToNestCL + Int(S1 / 2 * ShearMult) - Int(S3 * ShearMult) +
793 Int(S5 * ShearMult)
794         chars_sent = Form1SendCommand("D ," + Str(FinalNestPos) + ",," +
795 Str(ShearPos))
796         chars_sent = Form1SendCommand("GO XXX1")
797         pause (1)
798         chars_sent = Form1SendCommand("GO X1XX")
799         WriteStatus ("ShearStep = 13 Move Shear and Nest to final third cut position")
800     End If
801
802     If ShearStep = 14 And AXIS4POS = ShearPos And AXIS2POS = FinalNestPos
803 Then
804         ShearStep = 15
805         ShearTime = Val(Timer())
806         chars_sent = Form1SendCommand(Out15F) 'Solenoid Off
807         chars_sent = Form1SendCommand(Out20T) 'Start the Clamp Down
808         chars_sent = Form1SendCommand(Out12F)
809         chars_sent = Form1SendCommand(Out11T)
810         ShearTime = Val(Timer())
811         Form1.Poll60001.Update
812         Shearvalue = Val(Form1.Poll60001.value)
813         Do While Shearvalue < 1 And Val(Timer()) < ShearTime + 4 'Wait for Clamp
814 Pressure
815             Form1.Poll60001.Update
816             Shearvalue = Val(Form1.Poll60001.value)
817         Loop
818         chars_sent = Form1SendCommand(Out20F)
819         chars_sent = Form1SendCommand(Out21T) 'Start the Blade Down
820         ShearTime = Val(Timer())
821         WriteStatus ("ShearStep = 14 Clamp Down Cut THREE")
822     End If
823
824     If ShearStep = 15 And Val(Timer()) > ShearTime + 3 Then ' reduced shear time by
825 2 02/02/00
826         ShearStep = 16
827         ShearTime = Val(Timer())
828         Form1.Poll60001.Update
829         Shearvalue = Val(Form1.Poll60001.value)
830         Do While Shearvalue < 1
831             Form1.Poll60001.Update
832             Shearvalue = Val(Form1.Poll60001.value)
```

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Title of Application: APPARATUS AND METHOD OF ON DEMAND PRINTING,  
BINDING, AND TRIMMING A PERFECT BOUND BOOK

```
833      Loop
834      pause (1)
835      chars_sent = Form1SendCommand(Out11F)
836      chars_sent = Form1SendCommand(Out12F)
837      pause (0.5)
838      chars_sent = Form1SendCommand(Out20F)
839      chars_sent = Form1SendCommand(Out21F)
840      WriteStatus ("ShearStep = 15 End Cut THREE")
841  End If
842
843  If ShearStep = 16 Then
844      ShearStep = 17
845      ShearTime = Val(Timer())
846      DoOpenShear
847      WriteStatus ("ShearStep = 16 Open Shear Started after CUT THREE")
848      ShearTemp = False
849      ShearTemp2 = False
850  End If
851
852  If ShearStep = 17 And Val(Timer()) > ShearTime + 2 And axis4stat = 262192 Then
853      ShearStep = 18
854      ShearPos = 100000
855      chars_sent = Form1SendCommand("V ,20,,20: D ,," + Str(ShearPos))
856      chars_sent = Form1SendCommand("GO XXX1")
857      NextNestMove = Val(Timer())
858      WriteStatus ("ShearStep = 17 Move Shear Back")
859      ShearTemp = True
860  End If
861
862  If ShearStep = 18 And Val(Timer()) > (NextNestMove + 1) And AXIS4POS =
863  ShearPos Then
864      ShearStep = 19
865      NestPos = 400000
866      chars_sent = Form1SendCommand("V ,20: D ," + Str(NestPos))
867      chars_sent = Form1SendCommand("GO X1XX")
868      chars_sent = Form1SendCommand(Out17F) 'Rot Rev
869      chars_sent = Form1SendCommand(Out16F) 'Rot Off
870      chars_sent = Form1SendCommand(Out15T) 'Solenoid ON
871      chars_sent = Form1SendCommand(Out17T) 'Rot Rev
872      chars_sent = Form1SendCommand(Out16T) 'Rot
873      chutedown
874      WriteStatus ("ShearStep = 18 Move Nest Up, Rotate Nest, Call ChuteDown")
875  End If
876
```

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```
877     If ShearStep = 19 And ChutelsDown = True Then
878         ShearStep = 20
879         chars_sent = Form1SendCommand(Out16F) 'Rot off
880         chars_sent = Form1SendCommand(Out17F) 'Rot revOff
881         chars_sent = Form1SendCommand(Out15F) 'Solenoid Off
882         pause (1)
883         chars_sent = Form1SendCommand(Out16T) 'Rot
884         WriteStatus ("ShearStep = 19 and Doing Second Rotation")
885         NextNestMove = Val(Timer())
886     End If
887
888     If ShearStep = 20 And Val(Timer()) > (NextNestMove + 1) Then
889         ShearStep = 21
890         ShearTemp = False
891         ShearTemp2 = False
892         chars_sent = Form1SendCommand(Out11F)
893         chars_sent = Form1SendCommand(Out9F) 'Nest Clamp
894         ShearTime = Val(Timer())
895         WriteStatus ("ShearStep = 20  Open Book Clamp")
896         NextNestMove = Val(Timer())
897         pause (2)
898     End If
899
900     If ShearStep = 21 And Val(Timer()) > (NextNestMove + 2) Then
901         ShearStep = 22
902         chars_sent = Form1SendCommand(Out16F) 'Rot Off
903         chars_sent = Form1SendCommand(Out17F) 'Rot Off
904         NestPos = 0
905         chars_sent = Form1SendCommand("V ,20: D ," + Str(NestPos))
906         chars_sent = Form1SendCommand("GO X1XX")
907         chuteup
908         ShearTime = Val(Timer())
909         Form1SendCommand (Out15T) 'Solenoid
910         Form1SendCommand (Out17T) 'Rot Rev
911         Form1SendCommand (Out16T) 'Rotate
912         WriteStatus ("ShearStep = 21  Clamp & Rotate Off, Home Axis Two")
913     End If
914
915     If ShearStep = 22 And Axis2Stat = 262192 And Val(Timer()) > (ShearTime + 2)
916 Then
917         ShearStep = 0
918         ShearReady = True
919         Form1SendCommand (Out15F) 'Solenoid
920         Form1SendCommand (Out16F) 'Rotate
```

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```
921      Form1SendCommand (Out17F) 'Rot Rev
922      WriteStatus ("ShearStep = 22 Zero Axis Two")
923      End If
924
925      Loop
926
927      End Sub
```

### Basic Code for Printer 110 Controller CONT 2 Controller RPC-150

```
1  001 ' NOTES B&W#1.TXT 04/20/2001
2  002 ' CONFIGURE DIG I/O BOARD
3  003 CONFIG PIO 1,0,0,1,1,0
4  010 ' INPUTS AND OUTPUTS
5  011 ' LINE EVENT
6  012 ' INPUTS (BOARD POS #)
7  013 ' OPTO(0) PRINTER SOLENOID
8  014 ' OPTO(1) TRANSPORT LIMIT SWITCH
9  015 ' OPTO(2) TRAY DOWN LIMIT
10 016 ' OPTO(3) TRAY UP LIMIT
11 017 ' OPTO(4) CLAMP LIMIT
12 018 '
13 030 ' OUTPUTS
14 031 ' OPTO 8 TRAY ROTATE MOTOR
15 032 ' OPTO 9 VIBRATOR
16 033 ' OPTO 10 BOOK IN PLACE TO I/O ON MAIN UNIT
17 034 ' OPTO 11 15 VDC POWER TO MOTOR
18 035 ' OPTO 12 MOTOR REVERSER
19 036 ' OPTO 13 UNUSED
20 037 '
21 038 '
22 039 '
23 040 '
24 118 ' *****SUBROUTINES*****
25 119 '
26 120 '
27 121 '
28 122 '
29 123 '
30 124 '
31 900 ' INITIALZE VARIABLES
32 910 M1=0 : ' TRANSPORT STATE
```

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Title of Application: APPARATUS AND METHOD OF ON DEMAND PRINTING,  
BINDING, AND TRIMMING A PERFECT BOUND BOOK

```
33 920 V1=0 : ' VIBRATOR STATE
34 1000
35 1020 ' START OF MAIN LOOP
36 1030 IF OPTO(0)=1 .AND. V1=0 THEN OPTO 9,1 : V1=1
37 1050 IF OPTO(1)=1 .AND. M1=0 THEN GOSUB 5000
38 1060 IF OPTO(1)=0 .AND. M1=1 THEN GOSUB 5500
39 2000 GOTO 1020
40
41 5000 ' TRAY ROTATE AND DUMP ROUTINE
42 5010 M1=1 : ' TRANSPORT IS HERE
43 5011 DELAY 2 : ' LET THE TRANSPORT SETTLE
44 5015 OPTO 12,0: OPTO 11,1
45 5020 IF OPTO(4)=0 THEN GOTO 5020
46 5022 DELAY 1.5
47 5025 OPTO 11,0 : DELAY .5
48 5100 OPTO 8,1
49 5110 IF OPTO(2)=0 THEN GOTO 5110
50 5115 OPTO 8,0
51 5117 DELAY 1
52 5120 OPTO 12,1:OPTO 11,1
53 5130 DELAY 3
54 5140 OPTO 11,0:OPTO 12,0
55 5180 OPTO 9,0 : V1=0
56 5190 OPTO 10,1
57 5199 RETURN
58
59 5500 ' TRAY UP, RESET 10
60 5510 ' RESET THE CLAMP
61 5550 OPTO 12,0 : OPTO 11,1
62 5560 IF OPTO(4)=0 THEN GOTO 5560
63 5570 OPTO 11,0
64 5580 OPTO 10,0
65 5581 OPTO 8,1
66 5582 IF OPTO(3)=0 THEN GOTO 5582
67 5583 OPTO 8,0
68 5584 OPTO 12,1:OPTO 11,1
69 5585 DELAY 5
70 5586 OPTO 11,0 : OPTO 12,0
71 5590 M1=0
72 5599 RETURN
73
```

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Title of Application: APPARATUS AND METHOD OF ON DEMAND PRINTING,  
BINDING, AND TRIMMING A PERFECT BOUND BOOK

### Basic Code for Printer 200 Controller CONT 3 Controller RPC-52

```
1 001 REM NOTES BB#2.TXT 04/06/2001
2 002 REM CONFIGURE DIG I/O BOARD
3 003 REM CONFIG LINE 100,5,255,255,0
4 004 REM Do this only once it is saved in System NVR
5 010 REM INPUTS AND OUTPUTS
6 011 REM LINE EVENT
7 012 REM INPUTS (BOARD POS #)
8 013 REM 100 TRANSPORT LIMIT SWITCH
9 014 REM 101 PRINTER SOLENOID
10 015 REM 102 TRAY DOWN LIMIT
11 016 REM 103 TRAY UP LIMIT
12 017 REM 104
13 018 REM 105
14 030 REM OUTPUTS
15 031 REM 108 TRAY ROTATE MOTOR
16 032 REM 109 15 V MOTOR ON
17 033 REM 110 DC MOTOR REVERSER
18 034 REM 111 VIBRATOR
19 035 REM 112
20 036 REM 113 BOOK IN PLACE
21 037 REM
22 038 REM
23 039 REM
24 040 REM
25 118 REM *****SUBROUTINES*****
26 119 REM
27 120 REM
28 121 REM
29 122 REM
30 123 REM
31 124 REM
32 125 REM 7000 DELAY USES D1
33 126 REM
34 127 REM
35 900 REM INITIALZE VARIABLES
36 910 M1=0 : REM TRANSPORT STATE
37 920 V1=0 : REM VIBRATOR STATE
38 1000
39 1020 REM START OF MAIN LOOP
40 1030 IF LINE(101)=0 .AND. V1=0 THEN LINE111,1 : V1=1
41 1050 IF LINE(100)=0 .AND. M1=0 THEN GOSUB 5000
```



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Title of Application: APPARATUS AND METHOD OF ON DEMAND PRINTING,  
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```
42 1060 IF LINE(100)=1 .AND. M1=1 THEN GOSUB 5500
43 2000 GOTO 1020
44
45 5000 REM TRAY ROTATE AND DUMP ROUTINE
46 5010 M1=1 :REM TRANSPORT IS HERE
47 5011 D1=2:GOSUB 7000 :REM LET THE TRANSPORT SETTLE
48 5015 LINE110,0:LINE109,1
49 5020 IF LINE(104)=1 THEN GOTO 5020
50 5022 D1=1.5:GOSUB 7000
51 5025 LINE109,0 : D1=.5 : GOSUB 7000
52 5100 LINE108,1
53 5110 IF LINE(102)=1 THEN GOTO 5110
54 5115 LINE108,0
55 5117 D1=1:GOSUB 7000
56 5120 LINE110,1:LINE109,1
57 5130 D1=3:GOSUB 7000
58 5140 LINE109,0:LINE110,0
59 5180 LINE111,0 : V1=0
60 5190 LINE113,1
61 5199 RETURN
62
63 5500 REM TRAY UP, RESET 113
64 5510 REM RESET THE CLAMP
65 5550 LINE108,1
66 5560 IF LINE(103)=1 THEN GOTO 5560
67 5570 LINE108,0
68 5580 LINE113,0
69 5581 LINE110,0:LINE109,1
70 5582 IF LINE(104)=1 THEN GOTO 5582
71 5583 LINE109,0 :D1=.5 : GOSUB 7000
72 5584 LINE110,1:LINE109,1
73 5585 D1=7:GOSUB 7000
74 5586 LINE109,0:LINE110,0
75 5590 M1=0
76 5599 RETURN
77 7000 REM SUB DELAY
78 7001 CLEAR TICK(0)
79 7002 T1=0
80 7010 DO
81 7015 T1=TICK(0)
82 7020 WHILE T1<D1
83 7045 RETURN
```